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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,618	01/04/2001	Rainer Pflug	PFLUG	4677

7590 03/26/2003

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[REDACTED] EXAMINER

SY, MARIANO ONG

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

3683

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/754,618	PFLUG ET AL.
	Examiner Mariano Sy	Art Unit 3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 13 February 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____ .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. The response filed on February 13, 2003 has been received.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niina (U.S. Patent Number 5,921,684) in view of Volkmuth (U.S. Patent Number 6,203,634 B1) and "Technical book, Ball and Roller Bearings, publisher John Wiley & Sons, third Edition, pp. 38-41".

Re-claim 1 Niina discloses, as shown in fig. 5, a thrust ball bearing 14 comprising first 14a and second 14b circular ring shaped bearing disks moving eccentrically to one another, and bearing balls 14c for rolling along circular tracks 11a, 13a. However Niina fails to disclose said first and second bearing disks made from a through-hardenable ferrous material. Volkmuth teaches the use of through hardened rolling bearing components which include rings, balls, washers, and generally all parts of a rolling bearing made of through hardened bearing steel, see col. 5, lines 65-67 and col. 6, lines 1-6. Technical book, Ball and Roller Bearings, publisher John Wiley & Sons, third Edition, pp. 38-41 teaches the use of through-hardening rolling bearing components. It would have been obvious to one of ordinary skill in the art to have merely utilized the well-known through-hardening bearing steel for use on bearing disks of Niina, in view of the teachings of Volkmuth and the Technical book, in order to withstand heavier loads and extend the usage and life of the bearing.

Re-claims 2, 3, 8, and 9 Niina was silent to show wherein the bearing disk are made of unalloyed, low-alloy or high-alloy ferrous material and made of a steel selected from the group consisting of C 45, C 55, C67, C 75. Technical book, Ball and Roller Bearings teaches bearing disks made of unalloyed, low-alloy or high-alloy ferrous material and made of a steel selected from the group consisting of C 45, C 55, C67, C 75. It would have been obvious to one of ordinary skill in the art to have use the wide array of alloy material to be used in the bearing disks of Niina, in view of the teaching of Technical book, Ball and Roller Bearings, depending upon the size, load, and environment being applied.

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Re-claim 6 Niina discloses, as shown in figure 5, thrust ball bearing for use in a scroll compressor having a housing 13, a revolving scroll member 11 mounted on a crank pin of a shaft 15a, a stationary scroll member 12, said first bearing disk connected with the revolving scroll member and said second bearing disk securely fixed to the housing, whereby a compressor space P is formed during interaction of the revolving and the stationary scroll member.

Re-claim 7, Niina discloses, as shown in fig. 5, a scroll compressor comprising: a housing 13, a stationary scroll member 12, a revolving scroll member 11, a compression space P, a thrust ball bearing 14 having a first bearing disk 14a, a second bearing disk 14b, and bearing balls 14c. However Niina fails to disclose said first and second bearing disks made from a through-hardenable ferrous material. Volkmuth teaches the use of through hardened rolling bearing components which include rings, balls, washers, and generally all parts of a rolling bearing made of through hardened bearing steel, see col. 5, lines 65-67 and col. 6, lines 1-6. Technical book, Ball and Roller Bearings, publisher John Wiley & Sons, third Edition, pp. 38-41 teaches the use of through-hardening rolling bearing components. It would have been obvious to one of ordinary skill in the art to have merely utilized the well-known through-hardening bearing steel for use on bearing disks of Niina, in view of the teachings of Volkmuth and the Technical book, in order to withstand heavier loads and extend the usage and life of the bearing.

5. Claims 4, 5, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niina (U.S. Patent Number 5,921,684) in view of Volkmuth (U.S.

Patent Number 6,203,634 B1) and "Technical book, Ball and Roller Bearings, publisher John Wiley & Sons, third Edition, pp. 38-41" in further view of Zernickel (U.S. Patent Number 6,062,736).

Re-claims 4, 5, 10, and 11 Niina as modified discloses wherein the bearing disks are produced through press work, see col. 1 lines 49-53. However Niina as modified was silent to show wherein the bearing disks are made by a non-cutting shaping process. Zernickel teaches radial rolling bearing is made by a non-chipping shaping procedure. It would have been obvious to one of ordinary skill in the art to have utilized the known shaping procedure with a shaping speed of <2 m/min on the bearing disks of Niina as modified, in view of the teaching of Zernickel, wherein the use of a suitable shaping speed depending upon the size of the bearing disks and the type of material used in order to form a smooth raceway surface.

6. Applicant's arguments filed on February 13, 2003 have been fully considered but they are not persuasive.

Examiner maintains the rejection is proper. Niina discloses a scroll compressor comprising: a thrust ball bearing having a first and a second bearing disk but was silent to disclose the bearing disks are made from through-hardened ferrous material. Volkmuth teaches the use of through-hardened rolling bearing components which include rings, balls, washers, and generally all parts of a rolling bearing made of through-hardened bearing steel, see col. 5, lines 65-67 and col. 6, lines 1-6. Technical book, Ball and Roller Bearings, publisher John Wiley & Sons, third Edition, pp. 38-41

teaches the use of through-hardened rolling bearing components. Thrust rolling bearings, with rollers or balls, having raceways or bearing disks made from through-hardened ferrous material are already well-known in bearing manufacturing. It would have been obvious to one of ordinary skill in the art to have merely utilized the well-known through-hardened bearing steel for use on bearing disks of Niina, in view of the teachings of Volkmuth and the Technical book, in order to withstand heavier loads and extend the usage and life of the bearing. Applicant argued that Zernickel reference, radial rolling bearing made by non-chipping shaping procedure and not in the context of applicant's thrust ball bearings. Examiner maintains Zernickel teaches the known non-chipping shaping procedure for making bearings that can apply to all types of bearings that have races or seat made by the well-known non-chipping shaping procedure with a shaping speed of ≤ 2 m/min. It would have been obvious to one of ordinary skill in the art to have merely use of a suitable shaping speed in the process of making bearings in order to form a smooth raceway surface and extend the usage and life of the bearing.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication should be directed to Mariano Sy at telephone number 703-308-3427.

M. Sy
M. Sy

March 10, 2003

M. C. Graham
3-11-2003
MATTHEW C. GRAHAM
PRIMARY EXAMINER
GROUP 310